GNSS Antennas

GNSS Active Patch and Flexible antennas complement ceramic and LDS-MID chip selections for superior signal processing and ground-independence over a wide range of navigation and tracking applications.

Features and Advantages

- **Topside of the poly-flexible antenna**
  Makes for easy peel-and-stick mounting anywhere within the device chassis.

- **Double-sided adhesive on the antenna reverse**
  Enables instant application anywhere on the inner wall of the device chassis by just removing its tape liner.

- **6 Micro-coaxial Cable Length options**
  (50, 100, 150, 200, 250, 300mm)
  Extends connectivity for maximum design flexibility.

- **Ceramic Patch Antenna**
  Delivers high gain, high radiation efficiency performance for the most demanding GPS applications.

- **Silver Pin**
  Positions and fixes the antenna to the PCB (via soldering); provides electrical contact between antenna and board.

- **Excellent re stripping characteristics**
  Allows product re-usage within 48 hours.

- **Low-profile design**
  Provides space savings.

- **PCB with integrated LNAs and SAW Filter**
  Ensures filtered, amplified signals are transmitted by the ceramic antenna on it.

- **UFL-type connector**
  Secures to the application’s device radio.

- **IPEX-1 connector**
  Secures to the application’s device radio.

Applications

- **Automotive**
  Navigation devices

- **Commercial Vehicles**
  High-speed rail

- **Industrial**
  Drones

- **Maritime Port Technology Systems**
  Surveying and Mapping Systems
  Emergency Response Systems

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*The series 206640 antenna is an active patch antenna with ceramic patch, ground plane (PCB), 2-stage LNA and SAW (Surface Acoustic Wave) filter - all integrated within a compact 25 by 25 by 6.5mm module complete with a 60mm cabled (IPEX-1 connector) extension.*
# GNSS Antennas

## Specifications

### Reference Information
- **Packaging:** Tape-and-Reel (146216, 146235), Tray (146168, 204286, 206640, 208890), PET Film (206560)
- **Design In:** mm
- **RoHS:** Yes
- **Halogen Free:** Yes

### Electrical
- **RF Power (Watt):** 2
- **Average Total Radiation Efficiency:** Refer to Product Specifications
- **Peak Gain:** Refer to Product Specifications
- **Input Impedance (ohms):** 50

### Mechanical
- Refer to Product Specifications

### Physical
- **Housing:** Ceramic (206640, 204286, 146168, 208890), Flexi (206560), LDS-MID (146216, 146235)
- **Plating:** Refer to Sales Drawings
- **Operating Temperature:**
  - -40 to +85°C (206560, 206640)
  - -40 to +125°C (146168, 146216, 146235, 204286)
  - -30 to +85°C (208890)

## GNSS Antenna Family

<table>
<thead>
<tr>
<th>Antennas</th>
<th>GNSS Flexible Antenna (206560)</th>
<th>GNSS Active Patch Antenna with Low-Noise Amplifier (206640)</th>
<th>Helix GPS Antenna (146235)</th>
<th>RHCP LDS-MID GPS Antenna (146216)</th>
<th>RHCP Ceramic GPS Antenna (146168)</th>
<th>GPS/BEIDOU/GLONASS Ceramic Antenna (204286)</th>
<th>Low-profile GPS Ceramic Antenna (208890)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimension</strong></td>
<td>40.40 by 15.40mm</td>
<td>25.00 by 25.00 by 6.50mm</td>
<td>3.00 by 5.00 by 4.00mm</td>
<td>11.80 by 11.55 by 6.00mm</td>
<td>25.00 by 25.00 by 4.00mm</td>
<td>25.00 by 25.00 by 4.00mm</td>
<td>18.00 by 18.00 by 2.00mm</td>
</tr>
<tr>
<td><strong>PCB Clearance</strong></td>
<td>No clearance</td>
<td>No clearance</td>
<td>4mm x 6mm</td>
<td>No clearance</td>
<td>No clearance</td>
<td>No clearance</td>
<td>No clearance</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>Flexi</td>
<td>Ceramic + PCB + Tin Plate</td>
<td>LDS</td>
<td>LDS</td>
<td>Ceramic</td>
<td>Ceramic</td>
<td>Ceramic</td>
</tr>
<tr>
<td><strong>Antenna Type</strong></td>
<td>Dipole</td>
<td>Active Patch</td>
<td>Monopole</td>
<td>PIFA</td>
<td>Patch</td>
<td>Patch</td>
<td>Patch</td>
</tr>
<tr>
<td><strong>Frequency Range</strong></td>
<td>1561 – 1602 MHz</td>
<td>1561 – 1602 MHz</td>
<td>1561 – 1602 MHz</td>
<td>1575 MHz</td>
<td>1575 MHz</td>
<td>1561 – 1602 MHz</td>
<td>1575 MHz</td>
</tr>
<tr>
<td><strong>Return Loss</strong></td>
<td>&lt; -8dB</td>
<td>- 8dB (SWR 2.5)</td>
<td>&lt; -8dB</td>
<td>&lt; -10dB</td>
<td>&lt; -15dB</td>
<td>&lt; -10dB</td>
<td>&lt; -15dB</td>
</tr>
<tr>
<td><strong>Peak Gain</strong></td>
<td>1.5dBi</td>
<td>LNA 28dB</td>
<td>1.1dBi</td>
<td>1dB</td>
<td>5.5dBi</td>
<td>5.5dBi</td>
<td>2.6dB</td>
</tr>
<tr>
<td><strong>Total Efficiency</strong></td>
<td>&gt; 74% (50mm)</td>
<td>NA</td>
<td>&gt;50%</td>
<td>&gt;55%</td>
<td>&gt;75%</td>
<td>&gt;70%</td>
<td>&gt;45%</td>
</tr>
<tr>
<td><strong>Polarization</strong></td>
<td>Linear</td>
<td>RHCP</td>
<td>Elliptic</td>
<td>RHCP</td>
<td>RHCP</td>
<td>Elliptic</td>
<td>RHPC</td>
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<tr>
<td><strong>Axial Ratio</strong></td>
<td>N.A.</td>
<td>N.A.</td>
<td>&lt; 6.0</td>
<td>&lt; 3.0</td>
<td>&lt; 3.0</td>
<td>&lt; 13.0</td>
<td>&lt; 2</td>
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</tbody>
</table>

## Ordering Information

<table>
<thead>
<tr>
<th>Series No.</th>
<th>Description</th>
<th>Mounting Style</th>
</tr>
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<tbody>
<tr>
<td>206560</td>
<td>GNSS Flexible Antenna</td>
<td>Peel-and-stick</td>
</tr>
<tr>
<td>206640</td>
<td>GNSS Active Patch Antenna with Low-Noise Amplifier</td>
<td>SMT</td>
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<tr>
<td>204286</td>
<td>GPS/BEIDOU/GLONASS Ceramic Antenna</td>
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<td>RHCP Ceramic GPS Antenna</td>
<td>Peel-and-stick</td>
</tr>
<tr>
<td>208890</td>
<td>18x18mm GPS Ceramic Antenna</td>
<td>Peel-and-stick</td>
</tr>
</tbody>
</table>

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Order No. 987651-5071 Rev. 5

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www.molex.com/link/gnss-gps.html